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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/652,150	08/31/2000	Kazuhiro Hoshino	SON-1894	2607

7590 10/06/2006

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EXAMINER

HERNANDEZ, NELSON D

ART UNIT PAPER NUMBER

2622

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/652,150	Applicant(s) HOSHINO ET AL.	
	Examiner Nelson D. Hernandez	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 4, filed July 18, 2006, with respect to the rejections of claims 12, 19 and 20 under 35 USC § 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 12, 13, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al., US Patent 5,040,069.**

Regarding claim 12, in a second embodiment, Matsumoto et al. discloses an optical system having an optical module (See fig. 7), the optical module comprising: a substrate (See fig. 7, substrate 103), the substrate including a plate (Fig. 7: 102) of a first material (glass, see col. 5, lines 37-44) adhered to a wiring board (Fig. 7: 103) of a material (resin film, see col. 5, lines 37-44) other than the first material; an optical element (Fig. 7: 104) mounted to the wiring board, the optical element including a light receiving portion (Fig. 7: 104a), the wiring board being between the optical element and

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the plate (See wiring board 103 located between the optical element 104 and the plate 102 as shown in fig. 7); and a lens unit (see optical unit composed of an inner and outer cylinders 12 and 13 as shown in fig. 2; col. 2, lines 59-65; see lens unit also in fig. 7) mounted to the plate, the lens unit including a lens (See fig. 1: L), the plate being between the wiring board and the lens unit (See the plate 102 located between the wiring board 103 and the lens unit as shown in fig. 7) (Col. 5, lines 37-65).

In the second embodiment Matsumoto et al. does not explicitly disclose that a through-hole extending through the plate and the wiring board and that the light receiving portion and the lens are disposed along an optical axis, the optical axis extending through the through-hole.

However, in the first embodiment, Matsumoto et al. discloses an optical system having an optical module (See fig. 2), the optical module comprising: a substrate (See fig. 7, substrate 15), the substrate including a plate (Fig. 2: 15) of a first material (ceramic, see col. 3, lines 1-11) having a wiring pattern (Fig. 4: 17), a through-hole (Fig. 2: 16) extending through the plate and the wiring pattern; an optical element (Fig. 2: 19) mounted to the wiring pattern, the optical element including a light receiving portion (Fig. 2: 19a), the wiring pattern being between the optical element and the plate (the optical element is located on the rear part of the plate 15, where the wiring pattern is located); and a lens unit (see optical unit composed of an inner and outer cylinders 12 and 13 as shown in fig. 2; col. 2, lines 59-65; see lens unit also in fig. 7) mounted to the plate, the lens unit including a lens (See fig. 1: L), the plate being between the wiring pattern and the lens unit (See the plate 15 located between the wiring pattern 103 and the lens unit

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as shown in fig. 2), wherein that the light receiving portion (Fig. 2: 19a) and the lens are disposed along an optical axis, the optical axis extending through the through-hole (See fig. 2) (Col. 2, line 56 – col. 3, line 58).

Therefore, one of ordinary skill in the art would find obvious to apply the teaching of Matsumoto et al. in the first embodiment to the teaching of the second embodiment to have a through-hole extending through the plate and the wiring board and that the light receiving portion and the lens are disposed along an optical axis, the optical axis extending through the through-hole. The motivation would have been to improve the optical system by having the ability to position a protective glass or a filter in order to protect the optical element or to capture images under different illumination conditions according to the application.

Regarding claim 13, Matsumoto et al. discloses that the lens is mounted to a lens barrel (See figs 1, 2 and 7; col. 2, lines 59-65) but does not explicitly disclose the lens barrel being moveable in a direction along the optical axis.

However, Official Notice is taken that the use of lens barrels being moveable along the optical axis of an optical module is notoriously well known to perform different functions (i.e. focusing, depth of field adjustment, etc) in the art and would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Matsumoto et al. by having a lens barrel moveable along the optical axis. The motivation to do so would have been to increase the efficiency of the optical system by allowing adjustment of focusing or depth of field of the optical element.

Regarding claim 19, claim 19 is analyzed and discussed with respect to claim 12. Matsumoto et al. discloses the optical system applied to an imaging device (Electronic endoscope, see fig. 1, col. 2, lines 59-65). Grounds for rejecting claim 12 apply here.

Regarding claim 20, claim 19 is analyzed and discussed with respect to claim 12. Matsumoto et al. discloses the optical system applied to a camera system (Electronic endoscope, see fig. 1, col. 2, lines 59-65). Grounds for rejecting claim 12 apply here.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al., US Patent 5,040,069 in view of Murano, US Patent 5,617,131.

Regarding claim 14, Matsumoto et al. does not explicitly disclose that the first material is a metal.

However, Murano teaches the use of a plate (Fig. 3: 9c) of a first material (metal) adhered to the wiring board (substrate 2 as shown in fig. 3) of a material (i.e. alumina, silica, calcia and magnesia, see col. 4, line 63 – col. 5, line 9) different from the first material in order to separate the wiring board and the imaging array (Fig. 3: 3) from the other elements of the image device (i.e. lens 9 and other substrates 4; see figs. 3 and 5). Murano also teaches that the imaging array may be an LED, a CCD or EL (See col. 3, lines 16-20; col. 11, lines 39-45) (Col. 3, lines 16-50; col. 4, line 63 – col. 5, line 28; col. 5, line 64 – col. 6, line 50). Having a metal plate adhered to the substrate is

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advantageous because it would reinforce the substrate in order to prevent fissure or crack from occurrence to the optical system.

Therefore, taking the combined teaching of Matsumoto et al. in view of Murano as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Matsumoto et al. by having the material of the plate being a metal. The motivation to do so would have been to reinforce the substrate in order to prevent fissure or crack from occurrence to the optical system as suggested by Murano (Col. 6, lines 45-50).

5. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al., US Patent 5,040,069 in view of Mochizuki, US Patent 5,777,335.

Regarding claim 15, the combined teaching of Matsumoto et al. does not explicitly disclose that the optical element includes a shielding layer, the light receiving portion being between the shielding layer and the lens.

However, Mochizuki discloses a solid photographing apparatus (See figs. 2 and 9), comprising: a photographic element (Fig. 2: 1) having an upper face with a light receiving portion and an opposing lower face; a circuit board (Fig. 1: 7) having a circuit board upper face and a circuit board lower face; said circuit board upper face defines a recessed portion having an inner surface with a light blocking shield (Fig. 2: 30(5)) disposed thereon (See fig. 2, the wiring 11 forms the recessed portion of the circuit board); and said photographing element being mounted in said recessed portion with

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said lower face being shielded from light passing through said circuit board lower face by said light blocking shield and said photographing element being electrically connected to said circuit board (using wiring shown in fig. 2: 11) (Col. 3, lines 21-51; col. 4, lines 25-40). Having a shielding layer is advantageous because it would help preventing external scattering of radiation to the unwanted locations and the scattering of radiation outside the apparatus, and also, the generation of noises derived from such scattering.

Therefore, taking the combined teaching of Matsumoto et al. in view of Mochizuki as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical system by having a shielding layer, the light receiving portion being between the shielding layer and the lens. The motivation to do so would have been to improve the optical system efficiency by preventing external scattering of radiation to the unwanted locations and the scattering of radiation outside the apparatus, and also, the generation of noises derived from such scattering as suggested by Mochizuki (Col. 2, lines 6-10; col. 3, lines 40-47).

Regarding claim 16, the combined teaching of Matsumoto et al. in view of Mochizuki as applied to claim 15 teaches that the shielding layer is a metal layer (See Mochizuki, col. 4, lines 25-40; col. 5, lines 19-23).

6. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al., US Patent 5,040,069 in view of Mochizuki, US Patent 5,777,335 and further in view of Fujieda, US Patent 6,011,860.

Regarding claim 17, the combined teaching of Matsumoto et al. in view of Mochizuki fails to teach that the shielding layer is a resin layer.

However, Fujieda teaches that the use resin for the shielding layer (Fig. 3: 21, note that the hole casing is made with resin for blocking light) is notoriously well known in the art as an alternative for preventing light or radiation to reach the light receiving portion (Fig. 3: 26) (Col. 5, lines 19-40).

Therefore, taking the combined teaching of Matsumoto et al. in view of Mochizuki and further in view of Fujieda as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical system by having a shielding layer made with resin. The motivation to do so would have been to improve the optical system efficiency by preventing external scattering of light to the unwanted locations and the scattering of light outside the apparatus, and also, the generation of noises derived from such scattering using a material different from metal as a matter of design choice.

Regarding claim 18, the combined teaching of Matsumoto et al. in view of Mochizuki and further in view of Fujieda as applied to claim 17 teaches that a portion of the resin layer is in contact with the wiring board (See Mochizuki, figs. 1 and 2, the shielding layer 5 is in contact with the substrate 3).

Conclusion

7. Because new grounds of rejection have been applied to unamended claims 12-20, this Office Action will be Non-Final.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernandez whose telephone number is (571) 272-7311. The examiner can normally be reached on 8:30 A.M. to 6:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nelson D. Hernandez
Examiner
Art Unit 2622

NDHH
September 19, 2006



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